ZAKHAROV, V. V.

Water metabolism in the skin in tuberculous lupus vulgaris during treatment with vitamin D_3. V. V. Zakharov (State Med. Inst., Kuibyshev). *Vestnik Vener. i Dermatol.* 30, No. 1, 47(1956).—The disease brings about an increase in H_2O content of the skin up to 71–80%. Vitamin D_3 therapy tends to normalize this condition. G. M. Kosolapoff

ZAKHAROV, V.V., inzh.

Remote control of the operations of a degasing unit. Ugol'.prom. no.1:58-60 Ja-F '62. (MIRA 15:8)

1. Shakhta No.1-2 "Krasnyy Oktyabr'" Ordzhonikidzevskogo tresta ugol'nykh predpriyatiy Ministerstva ugol'noy promyshlennosti SSSR.
(Mine gases) (Remote control)

SANKIN, D.I., kand. ekon. nauk; SEMINOY, S.I., kand. ekon. nauk; BEREZNOY, N.I., kand. ekon. nauk; ZHDANOV, A.I., kand. ekon. nauk; GORCHAKOV, A.A., inzh.; ZAKHAROV, V.V., inzh.; YUNOVICH, I.M., inzh.; RYVKIN, A.S., inzh.; KOVRIGIN, V.V., ekonomist; DIDENKO, S.I., kand. ekon. nauk; SANDOMIRSKIY, A.T., ekonomist; GONCHARENKO, B.L., kand. ekon. nauk; KOTOV, V.F., inzh.; EYDEL'MAN, B.I., red.

[Handbook for the economist and planner in an industrial enterprise] Spravochnik ekonomista i planovika promyshlennogo predpriiatiia. Moskva, Ekonomika, 1964. 698 p. (MIRA 17:6)

ZAKHAROV, V.V.; TOKAREV, N.S.

New simple method for determining the level of underground waters for any given date. Trudy NPI 128:25-41 '62. (MIRA 15:9)

(Astrakhan Province--Water, Underground)
(Volgograd Province--Water, Underground)

TARASENKO, F.P.; ZAKHAROV, V.V.

Optimum quantization of a received signal on several levels. Izv. vys. ucheb. zav.; radiotekh. 5 no.2:278-283 Mr-Ap '62. (MIRA 15:7)

1. Rekomendovano Laboratoriyey radiofiziki Sibirskogo fiziko-tekhnicheskogo instituta pri Tomskom gosudarstvennom universitete imeni Kuybysheva.
(Radio) (Information theory)

ZAKHAROV, V. V., kand. med. nauk

Clinical aspects and treatment of coccidiosis. Vest. derm. i ven. no.4:74-77 '62. (MIRA 15:4)

1. Iz kliniki kozhnykh i venericheskikh bolezney (zav. - prof. A. S. Zenin) Kuybyshevskogo meditsinskogo instituta.

(COCCIDIOSIS)

35988
S/109/62/007/004/008/018
D230/D302

9,4230

AUTHORS: Lobov, G.D., and Zakharov, V.V.

TITLE: Change of directional electron current in a gaseous discharge under the action of a microwave field

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 4, 1962, 652 - 662

TEXT: It is shown theoretically that the microwave oscillatory power increases the electron directional velocity causing an increase in the discharge current through the tube. The theoretical results were verified experimentally and the variations in the directional part of the distribution function are reproduced on oscillograms. The experiments were conducted on tubes filled with neon at pressures between 5 and 8 mA. The analysis of an appropriate function Φ shows that the variation in the discharge current under the action of the microwave field is fundamentally due to the change in electron velocity and not in their concentration. Denoting f_1 - distribution function and n_e - electron concentration, function $\Phi \equiv f_1$

Card 1/3

Change of directional electron ...

n_e; This shows that during the bombardment in the discharge gap a change will take place in the form of Φ as a result of the variations in f_1 and n_e. The presence of the microwave field causes magnification of the total electron energy, as a result of which the response of f_1 widens with its maximum decreasing and moving in the direction of the higher frequencies; this variation applies also to the response of Φ for an unchanged electron concentration. On the basis of previously published information the full electron energy remains constant and the action of the e.m. field results in a change of electron concentration thus, increasing the microwave power only leads to an increase in the maximum response of Φ without changing its form. On the basis of the evidence obtained the difference function $\Delta\Phi = \Phi_d - \Phi_{d=0}$ should alternate in sign when the electron energy is changed and it should vary monotonically with the change in electron density when the energy is constant. The experimental data show that as a result of the action of the microwave power there is a change in the response of Φ corresponding to the electron energy variation and to the variation of directional

Card 2/3

Change of directional electron ...

velocity. In order to verify the theoretical results and to define the function f_1 a method of double differentiation of the difference current was employed. There are 9 figures and 7 Soviet-bloc references.

ASSOCIATION: Moskovskiy energeticheskiy institut, kafedra osnovy radiotekhniki (Moscow Power Institute, Department of the Principles of Radio Engineering)

SUBMITTED: July 8, 1961

Card 3/3

ZAKHAROV, V. V., Cand Agr Sci -- "Agricultural engineering and forestry measures of increasing the effectiveness of field-protecting forest belts." Stalingrad, 1961. (Min of Agr RSFSR. Stalingrad Agr Inst) (KL, 8-61, 253)

DUBYNIN, N.G.; ZAKHAROV, V.V.

Investigating the forces of cohesion and the coefficient of internal friction in broken-off ore of iron mines of Gornaya Shoriya. Trudy Inst.gor.dela Sib.otd.AN SSSR no.2:175-188 '59. (MIRA 13:5)

(Gornaya Shoriya--Iron mines and mining)
(Iron ores--Testing)

ZAKHAROV, V.V.; OLEYNIK, Yu.M.

Blocking out chambers at the Tashtagol mine with use of fan-cut and rod boring. Trudy Inst.gor.dela.Sib.otd.AN SSSR no.1:134-137 '58. (MIRA 12:11)

(Tashtagol region (Gornaya Shoriya)--Mining engineering)

DUBYNIN, N.G., ZAKHAROV, V.V.

Investigating the output of free-flowing materials. Trudy Inst. gor.dela.Sib.otd.AN SSSR no.1:160-168 '58. (MIRA 12:11)
(Granular materials)

M.

USSR/Cultivated Plants - General Problems.

Abs Jour : Ref Zhur - Biol., No 10, 1958, 44011

Author : Zakharov, V.V.
Inst : -
Title : Crops in the Inter-Strip Fields.

Orig Pub : Nauka i peredov. opyt s. M., 1957, No 10, 54-55

Abstract : No abstract.

Card 1/1

ZAKHAROV, V.V., kandidat tekhnicheskikh nauk.

N.S. Streletskii, scientist, engineer and pedagogue; on his 70th birthday and 40th anniversary of his pedagogical activity. Transp. stroi. 5 no. 10:30 D '55. (MLRA 9:3)
(Streletskii, Nikolai Stanislavovich, 1885-)

ZAKHAROV, V.V., kandidat tekhnicheskikh nauk.

Technical and economic bases of standard building plans for structures of the transport industry. Transp.stroi.6 no.6:1-4 Je '56. (Railroad bridges) (MLRA 9:9)

ZAKHAROV, V.V., kandidat tekhnicheskikh nauk.

Graphoanalytical method for calculating the optimum height of varying cross-section steel girders used in bridge construction. Sbor. trud. MISI no.10:167-183 '56. (MLRA 9:11)
(Bridges, Iron and steel) (Girders)

ZAKHAROV, V.V., kandidat tekhnicheskikh nauk.

Plotting optimal assortment of precart reinforced concrete structural elements. Standartizatsiia no.2:31-38 Mr-Ap '57. (MLRA 10:6)

1. Institut komplektnykh transportnykh problem Akademii nauk SSSR.
(Precast concrete--Standards)

ZAKHAROV, V.V., kand. tekhn. nauk

Economic substantiation of the assortment of standard articles. (MIRA 17:9)
Standartizatsiia 28 no.6:3-11 Je '64.

1. Institut kompleksnykh transportnykh problem Gosplana SSSR.

S/0044/64/000/003/V085/V085

ACCESSION NR: AR4039317

SOURCE: Ref. zh. Matematika, Abs. 3V481

AUTHOR: Gruzdev, G. P.; Zakrevskiy, A. D.; Zakharov, V. V.

TITLE: A programming program for the machine "Ural-1"

CITED SOURCE: Tr. Sibirsk. fiz.-tekhn. in-ta, v*p. 42, 1963, 3-8

TOPIC TAGS: programming program, Ural-1, Strelas BESM, program scheme language variant, argument index, arithmetic operation, code 30A command, parameter algorithm, nucleus

TRANSLATION: The authors discuss certain advantages of the programming program (PP), indicated in the title, compared to analogous operations for computers of the "Strela" type and the BESM. The program translates an algorithm, written on one of the variants of the language of program schemes, into the working program. Formulas are represented in the form of a parenthesis-free entry with an index of the arguments under an arithmetic operation. A general scheme for the PP is cited.

Card 1/2

ACCESSION NR: AR4039317

The author indicates the advantages of using the new command with code 30A, situated in the nucleus K, for obtaining address variables in the presence of algorithms of parameters. The contents of the nucleus with address A is added to the contents of the nucleus K+1, and the result is sent into the register of commands for fulfillment at the next instant of time. A. Krasilov.

DATE ACQ: 22Apr64 SUB CODE: MA ENCL: 00

Card 2/2

ACC NR: AN6023351 SOURCE CODE: UR/0271/66/000/004/B006/B006

SOURCE: Ref. zh. Avtomat telemekh i vychisl tekhn, Abs. 4B47

AUTHOR: Zakharov, V. V.

TITLE: A search algorithm for the extremal value of a function

CITED SOURCE: Tr. Sibirsk. fiz.-tekhn. in-ta pri Tomskom un-te, vyp. 47, 1965, 21-25

TOPIC TAGS: function analysis, computer calculation

ABSTRACT: The problem studied is that of finding the extrema of a function $sf(x)$, where $s = +1$ if the minimum is sought, and $s = -1$ if the maximum is sought. The search for a local minimum is made with a constant step h in the segment [0,1]. The parameter h is chosen depending on the degree of smoothness of f_X. Three neighboring points (x_{i-1}, x_i, x_{i+1}) at M are chosen for analysis and the corresponding values of the functions f_0, f_1, f_2. An algorithm is described along with a correction algorithm. A necessary and sufficient condition for a minimum of $sf(x)$ in the interval $(x-h, x+h)$ is $f_1 < f_0, f_1 \leq f_2$ where the search algorithm controls the correction algorithm. The correction algorithm ensures conditions for quadratic interpolation and produces the minimum value of the function $sf(x)$ and the minimum point.

SUB. CODE: 09 / 12 / SUBM DATE: 00/ ORIG REF: 000/ OTH REF: 000

UDC: 518.5:681.142.32.001

Card 1/1

ACC NR: AR6023352 SOURCE CODE: UR/0271/66/000/004/B008/B008

SOURCE: Ref. zh. Avtomat telemekh i vychisl tekha, Abs. 4B68

AUTHOR: Zakharov, V. V.

TITLE: A polynomial interpreting system

CITED SOURCE: Tr. Sibirsk. fiz.-tekhn. in-ta pri Tomskom un-te, vyp. 47, 1965, 5-10

TOPIC TAGS: computer memory, polynomial

ABSTRACT: The problem of semiautomatic computer memory distribution and the reduction of memory volume occupied by a working program is studied. The problem is solved by the method of "interpreting programs." The conditions of interpretation are defined as successive decoding conditions and the execution of separate parts of the problem in the form of sequences in which the input algorithm of the problem is coded. These blocks are called pseudocommands. A small pseudoprogram is in the operative memory. The interpreting system decodes the pseudo-operations of the pseudoprogram. One possible variant of the interpreting system for serial 3-address computers is described. Rational functions and Lagrange and Chebyshev polynomials are used as objects for the operation of the interpreting system. The principle on which the polynomial interpreting system is based consists in the interpretation of some operations on polynomials.. Rational functions (D-polynomials) are accepted in the polynomial

UDC: 681.142.2

Card 1/2

ACC NR: AR6023352

interpreting system. The basic operations of a polynomial system are indicated. Orig. art. has: 8 references.

SUB CODE: 09 SUBM DATE: 00/ ORIG REF: 000/ OTH REF: 000

Card 2/2

L 05681-67 EWT(d)/T IJP(c)
ACC NR: AR6027244 SOURCE CODE: UR/0044/66/000/003/B111/B111

34
B

AUTHOR: Zakharov, V. V.

REF SOURCE: Tr. Sibirsk. fiz.-tekhn. in-ta pri Tomskom un-te, vyp. 47, 1965, 21-25

TITLE: An algorithm for finding the extremal value of a function

SOURCE: Ref. zh. Matematika, Abs. 3B592

TOPIC TAGS: algorithm, mathematic analysis

TRANSLATION: The problem studied is that of finding the extremal value of a function $sf(x)$, where $s = +1$ if the minimal value is sought and $s = -1$ if the maximum is sought. The search for a local minimum is carried out with a constant step h in the segment [0,1]. The parameter h is chosen depending on the degree of smoothness of $f(x)$. For the analysis at the minimum three neighboring points (x_{i-1}, x_i, x_{i+1}) are chosen along with the values of the functions f_0, f_1, f_2 respectively at those points. An algorithm is described for the search and one for refinement of accuracy. A necessary and sufficient condition for the minimum of function $sf(x)$ in the interval $(x-h, x+h)$ is

$$f_1 < f_0, \; f_1 < f_2.$$

where the search algorithm provides a control for the nullifying algorithm. The nullifying algorithm ensures conditions for quadratic interpolation and produces the mini-

UDC: 518:512.39

Card 1/2

L 05681-67

ACC NR: AR6023244

mum value of the function $ef(x)$ and the minimum point. Yu. U.

SUB CODE: 12/ SUBM DATE: none

Card 2/2

L 08590-67 EWT(d)/EWP(1) IJP(c) GO/BB SOURCE CODE: UR/0044/66/000/006/V051/V051

ACC NR: AR6029277

AUTHOR: Zakharov, V. V.

TITLE: Polynomial interpretation system

SOURCE: Ref. zh. Matematika, Abs. 6V347

REF SOURCE: Tr. Sibirsk. fiz.-tekhn. in-ta pri Tomskom un-te, vyp. 47, 1965, 5-10

TOPIC TAGS: digital decoder, interpretation system, computer program, computer component, polynomial

ABSTRACT: The problem of a semiautomatic distribution of the memory of digital computers and the reduction in the memory volume occupied by the operating problem is being investigated. The problem is solved by the method of "interpretation programs". The conditions of interpretation are defined as a consecutive decoding and carrying out of individual parts of the problem comprising the original algorithm of the problem coded in the form of a sequence. These blocks are called pseudocommands. The operative memory contains a small volume pseudoprogram. The interpretation system (IS) decodes the pseudooperations of the pseudoprograms. One of the possible versions of the IS for the series three-address digital computer is described. The author discusses as objects for the operation of IS fractional-rational functions and polynomials in the Lagrange and Chebyshev form. The principle on which the polynomial interpretation system (POLIS) is based consists of the interpretation of certain

UDC: 681.142.002.5:51

Card 1/2

L 08590-67

ACC NR: AR6029277

operations over the polynomials. POLIS allows fractional-rational functions (F-polynomials). Basic operations within the POLIS are: addition, subtraction, multiplication, differentiation, integration, subtraction of the differences of norms, and the printing of the polynomials and F-polynomials. In addition to these operations, the system contains nonanalytic operations realizing algorithms for approximation of functions of one or two variables, and the operation of the calculation of the extrema of functions. It was assumed that the functions may be specified analytically as well as in tabular form. [Translation of abstract] Yu. U.

SUB CODE: 12,09

Card 2/2

VOROB'YEV, Il'ya Vladimirovich; SIMONOV, Mikhail Nikiforovich; ZAKHAROV, Vladimir Vasil'yevich

[Handbook on the operation of the OK-35 and OK-66 bark-stripping machines] Rukovodstvo po ekspluatatsii okorochnykh stankov OK-35- i OK-66. Moskva, Lesnaia promyshlennost', 1965. 137 p. (MIRA 19:1)

L 39420-65 EWT(d)/T IJP(c) S/0044/64/000/012/B115/B115

ACCESSION NR: AR5006740

SOURCE: Ref. zh. Matematika, Abs. 12B590

AUTHOR: Zakharov, V. V.; Tarasenko, F. P.

TITLE: Approximate formulas and tables of integral generalizations of Raleigh distributions

CITED SOURCE: Tr. Sibirsk. fiz.-tekhn. in-ta pri Tomskom un-te, vyp. 44, 1964, 164-176

TOPIC TAGS: approximation, distribution function, numerical analysis, Raleigh distribution

TRANSLATION: In problems of the reception of signals accompanied by noise, the problem of integral generalizations of the Raleigh distribution, determined by the formula

$$F(a,t) = \int x e^{-\frac{x^2+a^2}{2}} I_0(ax)\,dx, \qquad (1)$$

Card 1/3

where $\mathcal{L}$ is the ratio of the signal to the noise, and t is a given value of the random variable x, is frequently encountered. In the article, all of the approximate formulas for computing F (a,t) are systematized, and a few new formulas are introduced with an estimate of their convergence. The region of values of parameters in which each formula is applicable is discussed. Tabulations of the function F(a,t), calculated on the "Ural" computer are presented. For each a and t, one has the expression

$$F(a,t)=1-e^{\frac{-t^2+a^2}{2}}\sum_{k=0}^{\infty}\frac{1}{k!}\left(\frac{at}{2}\right)^k\sum_{n=0}^{k}\frac{1}{n!}\left(\frac{t^2}{2}\right)^n, \qquad (3)$$

The authors introduce the new approximate formula

$$F(a,t)=\frac{e^{\frac{-a^2}{2}}}{1-\frac{at}{2}}\left(1-e^{\frac{t^2}{2}\left[1-\frac{at}{2}\right]}\right)-e^{\frac{-a^2}{2}}R(a,t), \qquad (1)$$

Card 2/3

L 39420-65

ACCESSION NR: AR5006740

Here, R (a,t) is the remainder term

$$R(a,t)=\sum_{k=0}^{\infty} c_k \int_0^t x^{ak+1} e^{-\frac{x^2}{2}}\,dx = \sum_{k=0}^{\infty} c_k \left[1-e^{-\frac{t^2}{2}}\sum_{l=0}^{k}\frac{1}{l!}\left(\frac{t^2}{2}\right)^l\right]. \quad (4)$$

where

$$c_k=\left(1-\frac{1}{K1}\right)\frac{a^{2k}}{2^{ak}k!}, \quad c_k'=\left(1-\frac{1}{K1}\right)\frac{a^{2k}}{2^{ak}}. \quad (5)$$

Formula (1) becomes more accurate, the smaller are a and t. A tabulation of F (a,t) is given to 8 decimal places for a = 0,2 (0,2)4; t = 0(0,1)6. V. Barinova.

ENCL: 00

SUB CODE: MA

Card 3/3

LOBOV, G.D.; ZAKHAROV, V.V.

Change in the directed current of electrons in a gas discharge acted upon by a microwave field. Radiotekh. i elektron. 7 no.4:652-662 Ap '62. (MIRA 15:3)

1. Moskovskiy energeticheskiy institut, kafedra osnovy radiotekhniki. (Microwaves) (Radio detectors)

39715
S/142/62/005/002/019/019
E192/E382

6,4770

AUTHORS: Tarasenko, F.P. and Zakharov, V.V.

TITLE: Optimum quantization of a received signal at several levels

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, v. 5, no. 2, 1962, 278 - 280

TEXT: The problem of the optimum method of quantizing a received signal which is in the form of a useful discrete signal and continuous noise is analyzed. The signal amplitude can have values $a_0 = 0$ or $a_1 = a$, their probabilities being $p(a_j)$, where $j = 0, 1$. The received signal x is mixed with noise and is, in fact, a continuous waveform which is characterized by a random probability distribution function $p(x/a_j)$. This signal x is quantized into n levels in such a way that a discrete random quantity z, having n possible values, corresponds to a continuous random quantity x; thus, z takes a value z_i if $x_i \leq x \leq x_{i+1}$, where x_i is the

Card 1/3

Optimum quantization ....

i-th quantization threshold. The quantity of information I contained in the function z relative to a is therefore dependent on the position of the quantization levels (x_i) .

The problem consists of determining the maximum possible information, i.e. finding the solution of the following system of equations:

$$\frac{\partial I}{\partial x_i} = 0, \quad i = 0, 1, \ldots, n \qquad (2) .$$

It is found that a general analytical solution of this system is hardly possible. However, various practical cases can be solved numerically by means of electronic digital computers. This procedure was followed for the case of a multidimensional quantization of a signal received by the non-coherent-reception method. Some of the results of the calculations are shown in Fig. 36 , which illustrates the change in the ratio of the

Card 2/3

S/142/62/005/002/019/019
E192/E382

Optimum quantization ....

quantity on information preserved in a quantized signal to the total information as a function of the number n of the quantization level for various a . The figure shows that at small a the increase in the number of levels considerably reduces the loss of information. Thus, if a receiving system is required only for the purpose of determining the presence or absence of a useful signal in noise, an increase in the number of the quantization levels is justified only if the signal-to-noise ratio is low. There are 3 figures.

ASSOCIATION: Laboratoriya radiofiziki Sibirskogo fiziko-tekhnicheskogo in-ta pri Tomskom gos. universitete im. V.V. Kuybysheva (Radiophysics Laboratory of the Siberian Physicotechnical Institute of Tomsk State University im. V.V. Kuybyshev)

SUBMITTED: August 28, 1960

Card 3/3

ZAKHAROV, V.V., kand.tekhn.nauk

Technological principles of standardizing engineering structures. Division of elements of precast reinforced concrete span bridge structures into standardized groups and their economic indices. (MIRA 13:8)
Vop.tip.most.soor. no.4:26-94 '59.
(Bridges, Concrete)

L 6432-66 EWT(d)/EWP(1) IJP(c) BB/GG

ACC NR: AR5014357 SOURCE CODE: UR/0271/65/000/005/B008/B008

SOURCE: Ref. zh. Avtomatika, telemekhanika i vychislitel'naya tekhnika. Svodnyy tom, Abs. 5B57

AUTHOR: Zakharov, V. V.

TITLE: Program of complex alignment of an "Ural-1" computer

CITED SOURCE: Dokl. 3-y Sibirsk. konferentsii po matem. i mekhan., 1964, Tomsk, Tomskiy un-t, 1964, 267

TOPIC TAGS: computer / Ural 1 computer

TRANSLATION: The complex-alignment program is intended for adjusting the routines of arithmetic problems whose instructions are carried out with visible observation. If a special instruction occurs (whose completion is intended to be printed), the complex alignment program prints out its address and then sends the alignment result to the printer: i. e., a completion result or the special-instruction content. The complex-alignment program includes two fundamental modes: "Standard Print" and "Marked Instructions"; an emergency mode is also envisaged. In the first mode, the instructions having addresses μ, and ν are regarded as special; in the second mode, the instructions of the routines whose numbers are listed as marked are regarded as special. In all modes, the alignment result may be printed as a number with fixed or floating point.

Card 1/1 SUB CODE: DP UDC: 681.142.2

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39487

S/056/62/043/002/021/053
B104/B108

24 2120

AUTHORS: Zakharov, V. Ye., Karpman, V. I.

TITLE: Non-linear theory of attenuation of plasma waves

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 2(8), 1962, 490-499

TEXT: The non-linear interaction of a plasma with monochromatic Langmuir waves and their attenuation are investigated. Waves with sufficiently small amplitudes are considered only: $e\bar{\varphi}/T \ll 1$, where $\bar{\varphi}$ is the amplitude of the wave-field potential, and T is the plasma temperature. The kinetic equation

$$\frac{\partial f}{\partial t} + v\frac{\partial f}{\partial r} - \frac{e}{m}\frac{\partial \Phi}{\partial r}\frac{\partial f}{\partial v} = -\mathrm{St}(f), \qquad (6)$$

with the linearized collision integral

$$\mathrm{St}(f) = -\frac{L\omega_0^4}{4\pi n}\frac{\partial}{\partial v_i}\left\{\frac{1}{v^3}\left[v_i f + \left(v^2\delta_{ik} - v_i v_k - \frac{T}{m}\frac{v^2\delta_{ik} - 3v_i v_k}{2v^2}\right)\frac{\partial f}{\partial v_k}\right]\right\}, \qquad (8)$$

Card 1/2

S/056/62/043/002/021/033
B104/B108

Non-linear theory of attenuation ...

furnishes

$$f_0^{\pm}(\varepsilon) = A \exp\left[-\varepsilon \mp \tfrac{1}{2} c\pi \varphi_0^{-1/4}(\varepsilon - \varphi_0)\right], \quad (\varepsilon - \varphi_0)/\varphi_0 \ll 1,$$
$$f_0^{\pm}(\varepsilon) = A \exp\left[-\varepsilon \mp 2c\varepsilon^{1/4}\right], \quad \varepsilon \gg \varphi_0; \qquad (24a+b)$$
$$A = (n/\sqrt{2\pi}\, v_T)\, e^{-c^4}.$$

for the electron distribution function in the outer region and

$$f(\varepsilon, y) = f_0(\varepsilon)\, e^{-\nu c y}, \quad f_0(\varepsilon) = (ne^{-c^4}/\sqrt{2\pi}\, v_T)\, e^{-\varepsilon} + O(\varphi_0), \qquad (26)$$

for that in the inner region. The damping decrement is found to be

$$\gamma = \frac{12\alpha}{\tau_D}\left(\frac{v_f}{v_T}\right)^4 \exp\left(-\frac{v_f^2}{2v_T^2}\right)\left(\frac{e\Phi_0}{T}\right)^{-1/4}; \quad \alpha = \frac{7\pi+6}{16\sqrt{\pi}}. \qquad (42)$$

Notations: v_T is the thermal velocity of the electrons, n is the plasma density, ω_0 is the Langmuir frequency, and v_f is the phase velocity of the waves. There are 2 figures.

SUBMITTED: January 14, 1962

Card 2/2

ALIKHANOV, S. G.; ZAKHAROV, V. Ye.; KHORASANOV, G. L.

Plasma diffusion in a magnetic field caused by Coulomb collisions. Atom. energ. 14 nó.2:137-142 F '63. (MIRA 16:1)

(Magnetic fields) (Plasma(Ionized gases))
(Collisions(Nuclear physics))

S/0207/64/000/003/0167/0169

ACCESSION NR: AP4041210

AUTHOR: Zakharov, V. Ye. (Novosibirsk)

TITLE: Evolution of a wave packet in hydrodynamics from sound dispersion

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 3, 1964, 167-169

TOPIC TAGS: wave packet, hydrodynamics, sound dispersion, wave dispersion, magnetic field, cold plasma, electrostatic potential, ion dispersion, ionic sound, wave packet amplitude, self simulating solution

ABSTRACT: The author considers several cases: hydrodynamics of ionized sound, hydrodynamics with ionic dispersion, and sound propagation in cold plasma across a magnetic field. For each of these models he poses the problem of evolution of an arbitrary wave packet. At first it seems that if the amplitude of the packet is assumed sufficiently small, then the effect of nonlinear terms can be neglected and it may be considered that evolution of the packet is described by its spreading as the result of dispersion. However, it can be shown that such considerations are valid only for very rigid restrictions on the form of the packet. For the general case the effect of nonlinearity must be considered for arbitrarily small amplitude of the packet. The author studies a simple one-dimensional hydrodynamic model of

Card 1/2

ACCESSION NR: AP4041210

plasma; the model of ionic sound. He assumes that $T_e >> T_i$ and there is no magnetic field. He shows that only evolution of sufficiently narrow packets can be considered in the framework of his linearized equation, and he obtains a stricter condition on the form of the wave packet for which evolution is determined on the basis of linear terms. He shows that the self-simulating solutions of Yu. A. Berezin and V. I. Karpman (K teorii nestatsionarny*kh voln konechnoy amplitudy* v razrezhennoy plazme. Zh. Eksperim. i teor. fiz. (v. pechati)) satisfy the conditions he derives. "In conclusion the author thanks R. Z. Sagdeyev for his discussions of the work." Orig. art. has: 15 formulas.

ASSOCIATION: none

ENCL: 00

SUBMITTED: 23Jan64

OTHER: 000

SUB CODE: ME

NO REF SOV: 003

Card 2/2

L 43717-65 EWT(l)/EPF(n)-2/EWG(m)/EPA(w)-2 Pz-6/Po-4/Pab-10/Pi-4 IJP(c)
ACCESSION NR: AP5008504 WW/AT S/0207/64/000/006/0096/0098
57
B

AUTHOR: Zakharov, V. Ye. (Novosibirsk)

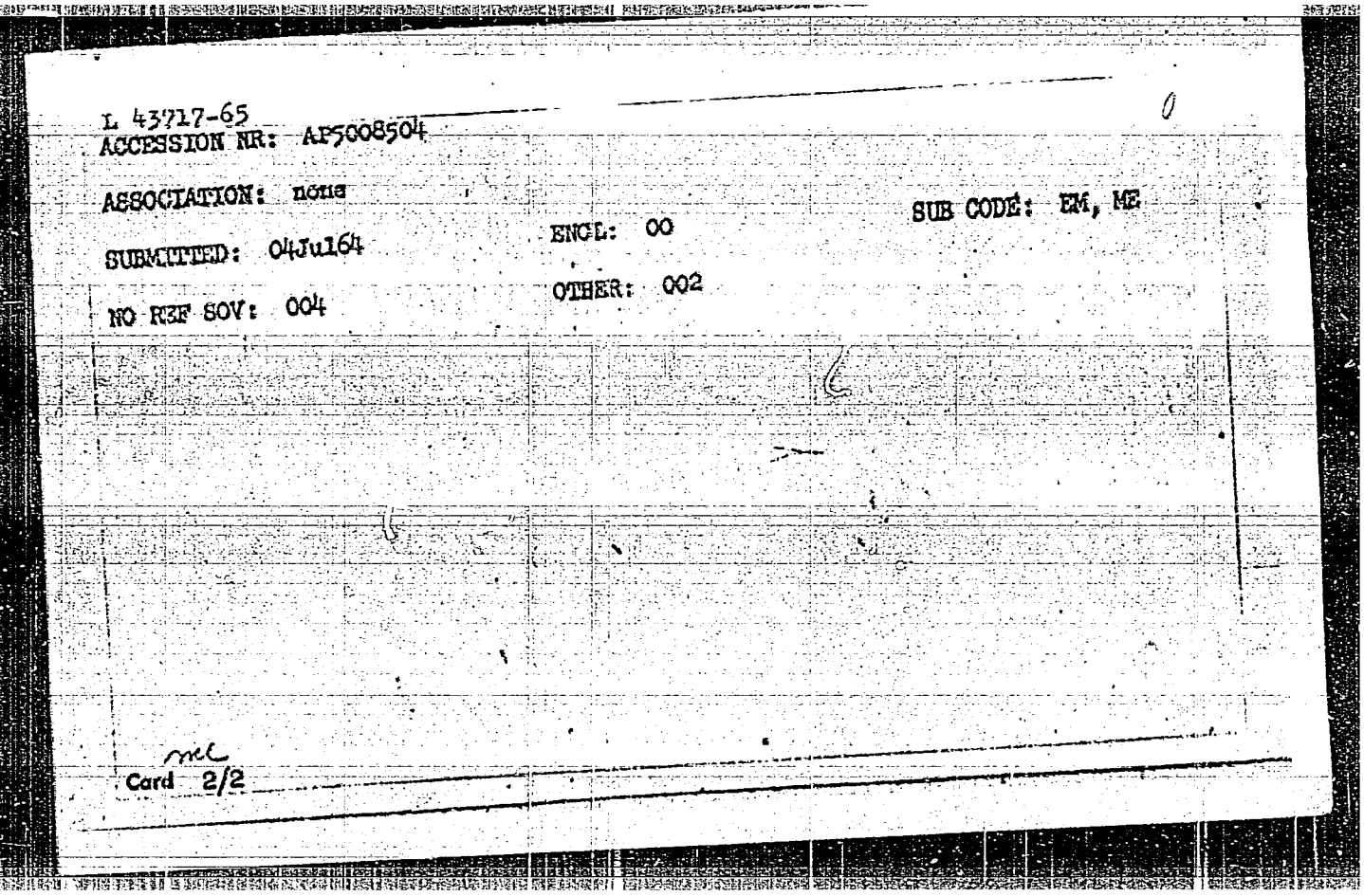
TITLE: Stationary nonlinear waves in a plasma of finite temperature 21

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 6, 1964, 96-98

TOPIC TAGS: plasma, hot plasma, cold plasma, wave propagation, magnetic field, stationary wave, nonlinear wave, standing wave, unperturbed flow, Larmor radius

ABSTRACT: Stationary nonlinear waves propagating across a magnetic field in a plasma of final temperature are investigated, and it is shown that in this case there exist isolated rarefaction waves with a characteristic length greater than, or of the order of, the Larmor radius of ions. It is assumed, for the calculations, that the plasma temperature is high. For the two cases considered, a plasma at final temperature and a cold plasma, the wave front is an oscillating structure dying out in the region of unperturbed flow. "The author thanks K.P. Gaydayev for his helpful advice and discussion of the work." Orig. art. has: 10 formulas and 1 figure.

Card 1/2



L 43717-65
ACCESSION NR: AP5008504

ASSOCIATION: none

SUBMITTED: 04Jul64 ENCL: 00 SUB CODE: EM, ME

NO REF SOV: 004 OTHER: 002

mc
Card 2/2

ZAKHAROV, V.Ye. (Novosibirsk)

"On non-linear plasma waves in a strong magnetic field"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

ZAKHAROV, V.Ye. (Novosibirsk)

A solvable model of weak turbulence. PMTF no.1:14-20 Ja-F '65.
(MIRA 18:8)

ACC NR: AP6036053 SOURCE CODE: UR/0056/66/051/004/1107/1114

AUTHOR: Zakharov, V. Ye.

ORG: Novosibirsk State University (Novosibirskiy gosudarstvenny universitet)

TITLE: Stability of waves in nonlinear dispersive media

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 4, 1966, 1107-1114

TOPIC TAGS: plasma wave, plasma stability, plasma decay, gravitation wave, random process, plasma oscillation

ABSTRACT: The author analyzes the stability of waves for which coherent decay of a large number of quanta is forbidden. It is shown that certain types of such waves, particularly ion-sound waves in a plasma and gravitational waves on the surface of a liquid, can be unstable against slower decay instabilities. The results are deduced from the general analysis of the instability of nonlinear waves, in which the instability brings about randomization of the waves within a time of the order of the reciprocal of the growth increment. The results are valid for the investigation of the stability of narrow wave packets, in which the phase relations do not have time to change noticeably within the time of instability development. The results obtained are applied to particular problems such as Langmuir oscillations in isothermal plasma without a magnetic field, ion-sound waves in a plasma with cold ions, and the stability of the waves on the surface of a liquid. In the latter case, it is shown that a

Card 1/2

ACC NR: AP6036053

progressive periodic wave on a surface of a liquid is unstable against excitation of pairs of oscillations whose wave vectors lie near a certain curve, an equation for which is given. The author thanks R. Z. Sagdeyev for a discussion of the work and V. L. Pokrovskiy for valuable remarks. Orig. art. has: 15 formulas.

SUB CODE: 20/ SUBM DATE: 02Mar66/ ORIG REF: 004/

Card 2/2

ACC NR: AP6036392 (A, N) SOURCE CODE: UR/0032/66/032/011/1389/1392

AUTHOR: Klygin, L. P.; Zakharov, V. Z.

ORG: none

TITLE: Investigation of the adhesive strength of the layers in bimetallic sheets under repeated static loads

SOURCE: Zavodskaya laboratoriya, v. 32, no. 11, 1966, 1389-1392

TOPIC TAGS: metal cladding, adhesive bonding, aluminum containing alloy

ABSTRACT: The subject of the investigation were sheets of Steel Kh18N10T-aluminum alloy AMg6, produced by hot rolling at 375-390°C. The billets were made of sheets of steel and aluminum alloy, clad with aluminum. The thickness of the aluminum cladding of alloy AMg6 before rolling in sheets was 1.5-2 mm. The thickness of the aluminum sublayer in the finished bimetallic sheets was not less than 0.2 mm. The total thickness of the bimetallic sheet was 10 ± 1 mm; the thickness of the AMg6 alloy was 4.95 mm, and that of steel Kh18N10T was 5.6 mm. The rolled sheets before trimming were subjected to annealing at 335°C for 2-3 hours. The experimental data are plotted on curves showing the distribution of the life of the samples as a function of the probability of failure under repeated static loads. It was established that the transition layer in bimetallic sheets of Kh18N10T steel AMg6 alloy has a considerable reserve of ductility under shear stress. Orig. art. has: 3 figures.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 001 UDC: 620.172:620.176

Card

GERMAN, A.Yu.; ZAKHAROV, V.Z.; NOVIKOV, I.I.; ROGEL'BERG, I.L.

Reduction of the plasticity of metals annealed following small plastic deformations. Izv.vys.ucheb.zav.; tsvet.met. 3 no.2: 156-160 '60. (MIRA 15:4)

1. Krasnoyarskiy institut tsvetnykh metallov, kafedra metallovedeniya. (Annealing of metals) (Plasticity)

ACCESSION NR: AT4037673 S/2981/64/000/003/0349/0362

AUTHOR: Zakharov, Ye. D.; Zakharov, V. Z.; Kopy*tov, G. A.; Chekanov, A. N.

TITLE: Causes of hot cracking in continuously cast ingots of high strength alloys

SOURCE: Alyuminiyevy*ye splavy*, no. 3, 1964. Deformiruyemy*ye splavy* (Malleable alloys), 349-362

TOPIC TAGS: aluminum alloy, alloy V95, continuously cast ingot, alloy hot cracking, effective crystallization range, ingot cooling, ingot temperature distribution, transition zone width, casting parameter selection, mold height selection, charging hopper width, continuous casting, aluminum alloy casting, alloy crystallization, mold diameter selection

ABSTRACT: The study concerned the selection of optimal conditions for continuous casting of ingots with diameters of 500-520 mm from technically pure alloy V95 (1.66% Cu, 2.13% Mg, 5.8% Zn, 0.42% Mn, 0.14% Cr, 0.18% Si), in order to counteract the alloy's tendency to hot cracking. Three casting variants involved mold diameters of 520 (I), 500 (II) and 520 (III) mm, respectively, mold heights of 200, 400 and 400 mm, hopper diameters of 130, 130 and 320 (circular)mm, casting rates of 18, 25 and 20 mm/min, water pressures of 0.2, 0.5 and 0.5 atm. and a melt temperature of 690C for all variants. Width of the transition zones and ingot temperature distributions were analyzed in terms of cooling curves

Card 1/2

L 59637-65 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(b)/EWA(c) Pf-4 IJP(c) JD/HW

ACCESSION NR: AP4021563 S/0136/64/000/003/0070/0074

18

AUTHOR: Zakharov, V. Z.; Klygin, L. P.

B

TITLE: Effect of the angle of slope of a die orifice upon extrusion process

SOURCE: Tsvetnyye metally, no. 3, 1964, 70-74

TOPIC TAGS: extrusion, rod extrusion, aluminum rod extrusion, extrusion die, aluminum

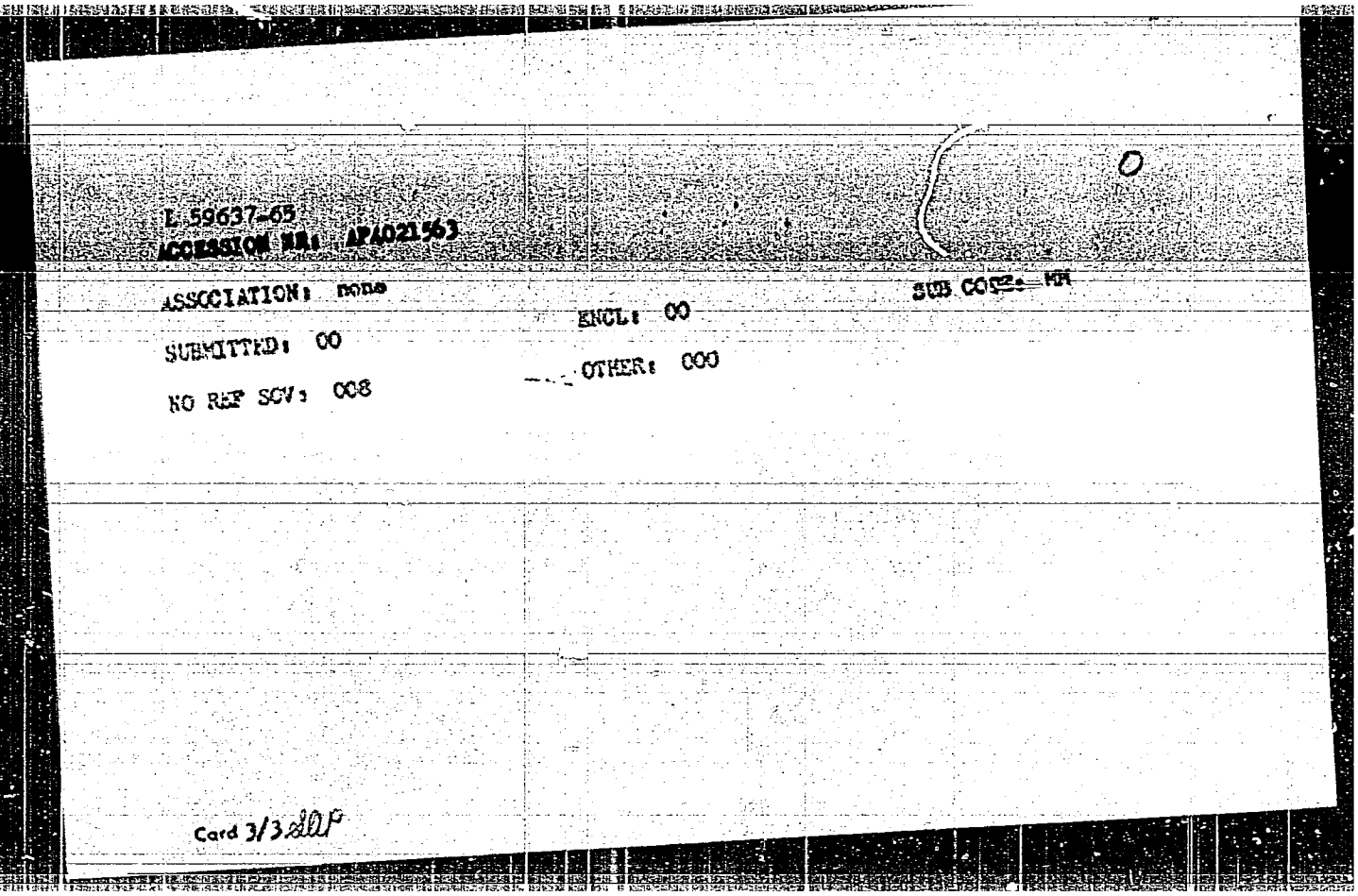
ABSTRACT: This article gives the results of an investigation on the effect of the angle of a die orifice on the structure, mechanical properties and metal flow in the extrusion of aluminum alloys. Specially designed dies with 12 or 4 orifices, each having a different (from -3° to 90°) entrance angle, were used. Analysis of the macrostructure of the extruded solution-annealed and aged bars showed that only the front portion of the rods and the rods extruded through the orifice with -3° angle have no coarse-grained structure on the surface. A coarse structure along the entire periphery of the cross section was observed in the middle and rear end of rods extruded through dies with 3, 10, 15, 20, 25, and 40° entrance angles. In the case of rods extruded through dies with 90, 60, 50, and

Card 1/3

L 59637-65
ACCESSION NR: AP4021563

45° angles the coarse structure was observed only on the end facing the container. Fragmentation of the crystals, causing an intensified grain growth in the peripheral zone during solution annealing occurs in the surface layers of the rods extruded through dies with -3, 10, 15, 20, 25, 30, and 40° angle, which is the result of increased friction in the orifices. The above-described structure-die angle relationships were also observed in the extruding of the 6 and 9 millimeter diameter rods. Rods extruded through dies with a 6 to 15° entrance angle have a considerably reduced strength, which can be explained by the formation of a maximum thickness macrocrystalline rim. It was also determined that the difference in the flow rate does not depend upon the deformation of the ingot in the container or but depends only upon the shape of the die orifice. These tests also showed that a "dead zone" forms in all cases in the die cavity zone. Authors recommend the use of a die with negative angle for extruding aluminum and its alloy. Because a negative exit angle assures minimum friction in the die, a satisfactory surface quality, minimum thickness of coarse-grained case, and superior mechanical properties. Orig. art. has: 7 figures and 1 table.

Card 2/3



L 59637-65
ACCESSION NR: AP4021563

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: HR

NO REF SOV: 008 OTHER: 000

Card 3/3 slp

L 45379-65 EWT(m)/EWP(w)/EWA(d)/EPR/T/EWP(t)/EWP(z)/EWP(b) Ps-4 IJP(c)
MJW/JD

ACCESSION NR: AP5006999 S/0129/65/000/003/0005/0006

AUTHOR: Klygin, L. P.; Stepnov, M. N.; Zakharov, V. Z.

TITLE: Fatigue and static crack strength of articles pressed from AV alloy of various degrees of purity

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 3, 1965, 5-8, and bottom half of insert facing p. 24

TOPIC TAGS: anisotropy, metal physical property, metal mechanical property, defect formation, oxide blister

ABSTRACT: The effect of metallurgical defects of the "oxide blister" type on the static crack strength, ductility, and fatigue strength of pressed semifinished products made of AV alloy was investigated. In order to determine the effect of the oxide blisters on the anisotropy of the properties, specimens with a working diameter of 3 mm were cut off in the extrusion direction, and also along the width and height of the strip. Data were also obtained on the effect of oxide blisters using a scale factor, for which specimens with a diameter of 10 mm were tested, and average values of the strength, reduction of area, and elongation were obtained and

Card 1/2

L 45379-65

ACCESSION NR: AP5006999

tabulated. The results show that oxide blisters markedly decrease the fatigue resistance of the material, particularly in transverse specimens. It was found that in all cases, the origin of a fatigue crack was an oxide inclusion. It is concluded that the presence of oxide blisters decreases the plasticity and resistance to cyclic loads, and markedly increases the scatter of the fatigue properties of pressed semifinished products. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 000

Aluminum alloy

27

b/o

Card 2/2

137-58-2-2902

ZAKHAROV, V.Z.

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 99 (USSR)

AUTHORS: Fridlyander, I.N., Zakharov, V.Z., Kashcheyev, M.G.

TITLE: A Study of Oxide Scab in Aluminum-alloy Forgings (Izucheniye okisnykh plen v shtampovkakh iz alyuminiyevykh splavov)

PERIODICAL: V sb.: Metallurg. osnovy lit'ya legkikh splavov. Moscow, Oborongiz, 1957, pp 298-305

ABSTRACT: A study was made of the causes of oxide-scab formation in aluminum-alloy forgings and of the relationship to scab formation of such factors as, a) the duration of the pouring operation, b) standing time in the holding furnace (mixer), c) forced mixing, d) the composition of the charge, e) filtration of the metal, and f) deformations. Data are given on oxide-scab distribution in individual forgings. It was demonstrated that the oxide scab is a result of a reaction of oxide casting scab with the metal in the process of being deformed. Some of it was related to the purity of the molten metal in the smelting furnace and to the rate at which scabs detached themselves from the stream surface while the metal was being poured. Filtration of the molten metal did not yield satisfactory results. The more oxide scabs there were

Card 1/2

137-58-2-2902

A Study of Oxide Scab in Aluminum-alloy Forgings

in the ingots and the greater was the degree of deformation, the greater were the size and number of scabs encountered in press-forgings and drop-forgings.

P.V.

1. **Aluminum alloy forgings---Impurities**

Card 2/2

SOV/149-58-6-14/19

AUTHORS: Zakharov, V.Z., Novikov, I.I., Rogel'berg, I.L. and ~~Yao Min-chich~~

TITLE: Investigation of the Effect of Some Factors on the Critical Degree of Deformation of Aluminium (Issledovaniye vliyaniya nekotorykh faktorov na kriticheskuyu stepen' deformatsii alyuminiya)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, 1958, Nr 6, pp 126 - 129 (USSR)

ABSTRACT: In the first stage of the investigation, the authors studied the effect of various additions (added in quantities usually present in industrial aluminium alloys) on the critical degree of deformation of aluminium. The following alloys were used in the experiments:

Al + 0.22;	0.3 ;	0.6%	Mn
Al + 0.27;	0.36;	0.55%	Fe
Al + 0.22;	0.42;	0.53%	Si
Al + 0.24;	1.23;	2.4%	Mg
Al + 0.22;	0.92;	4.19%	Cu
Al + 0.2;	1.2;	5.8%	Zn .

Card1/4

Investigation of The Effect of Some Factors on the Critical Degree of Deformation of Aluminium

The cast ingots 18.5 mm thick were hot-rolled to 3 mm and then cold-rolled to 1.5 mm thickness. The standard tensile test pieces prepared from the cold-rolled strip and annealed at 450 °C for 30 min were strained in tension at room temperature at the rate of strain equal approx. 15 mm/min, the degree of deformation varying between 1 and 21%. The test pieces were then annealed in a salt bath (30 min at 500 °C) after which the average grain size was determined. The relationship between the grain size (mm) of pure (99.67%) aluminium and Al-Mn alloys and the degree of preliminary deformation (%) is illustrated in Figure 1. The effect of the concentration of Mn, Fe, Si, Cu, Mg and Zn in the investigated Al alloys on the degree of critical deformation is shown in Figure 2. It was found that while Mn and, to a lesser extent, Fe caused a sharp increase in the critical degree of deformation, this property was hardly affected by the presence of the other studied elements. The results of determination of the recrystallisation temperatures and of the grain size

 measurements on specimens annealed at 300, 400, 500 and

Investigation of the Effect of Some Factors on the Critical Degree of Deformation of Aluminium

600 °C showed that Mn and Fe (up to 0.6%) are most effective in delaying the onset of recrystallisation and in inhibiting the grain growth during annealing of deformed Al alloys. The effect of the temperature of the deformation on the critical degree of deformation was studied on standard tensile test pieces prepared from pure (99.78%) cold-rolled aluminium. The test pieces were deformed in tension at temperatures varying from 20 to 400 °C and annealed at 450 °C for 30 min, after which their grain size was determined. The results reproduced in Figure 3 in the form of a graph show that the critical degree of deformation (%) increases with increasing temperature of the deformation. In the last stage of the investigation, the Al test pieces used for determination of the effect of the deformation temperature on the critical degree of deformation were subjected to room temperature tensile tests in order to measure their elongation. Figure 4 shows the relationship between the elongation (%) of these test pieces and the degree of preliminary deformation (%) at various temperatures. It can be seen that the higher the degree of deformation in the sub-critical region the

Investigation of the Effect of Some Factors on the Critical Degree of Deformation of Aluminium

lower is the elongation of the deformed and annealed material.
There are 4 figures and 9 references, 5 of which are Soviet, 3 German and 1 English.

ASSOCIATION: Moskovskiy institut tsvetnykh metallov i zolota. Kafedra metallovedeniya (Moscow Institute of Non-ferrous Metals and Gold. Chair of Metal Working)

SUBMITTED: September 1, 1958

KLYGIN, L.P.; STEPNOV, M.N.; ZAKHAROV, V.Z.

Fatigue resistance and static crack strength of parts extruded from the AV alloy of varying purity. Metalloved. i term. obr. met. no.3:5-8 Mr '65. (MIRA 18:10)

L 37164-66 EWT(m)/EWP(t)/ETI IJP(c) JD/GD/JH

ACC NR: AT6016426 (A) SOURCE CODE: UR/0000/65/000/000/0179/0183

AUTHOR: Zakharov, V. Z.

ORG: none

TITLE: Mechanical properties of deformable aluminum alloys of type duralumin with increased content of manganese

SOURCE: AN SSSR. Institut metallurgii. Metallovedeniye legkikh splavov (Metallography of light alloys). Moscow, Izd-vo Nauka, 1965, 179-183

TOPIC TAGS: solid mechanical property, manganese containing alloy, aluminum alloy / D16 aluminum alloy, D6 aluminum alloy, SO aluminum alloy, NS aluminum alloy

ABSTRACT: The effect of increasing the manganese content of the following duralumin type alloys on their mechanical properties was investigated.

Composition of the alloys studied (in %)

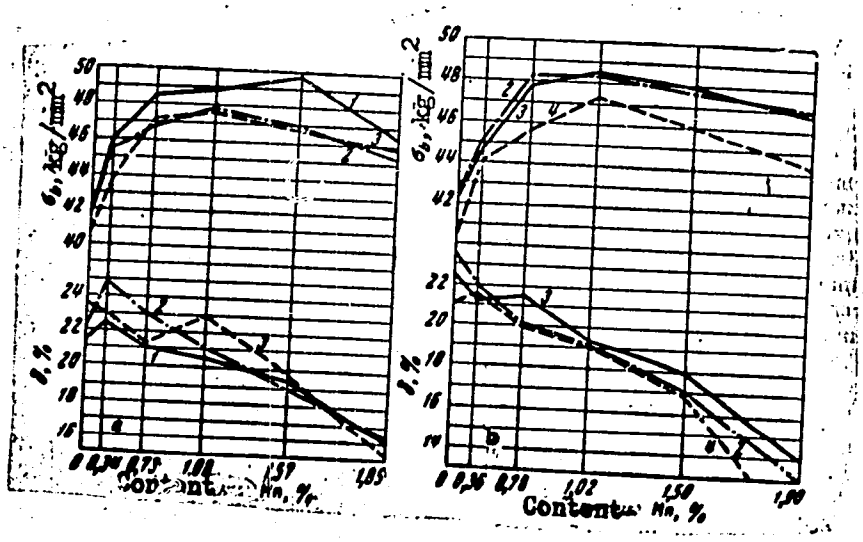
	1	2	3
Copper	4,2	5,0	5,0
Magnesium	1,5	1,5	1,0
Silicon	0,25	0,25	0,25
Iron	0,35	0,35	0,35

Card 1/3

L 37164-66

ACC NR: AT6016426

The investigation supplements the results of S. M. Voronov and V. N. Rzhevtsev (Aviapromyshlennost', 1937, No. 12). The experimental results are shown graphically (see Fig. 1).



to card 3/3

Card 2/3

L 37164-66

ACC NR: AT6016426

4

from card 2/3

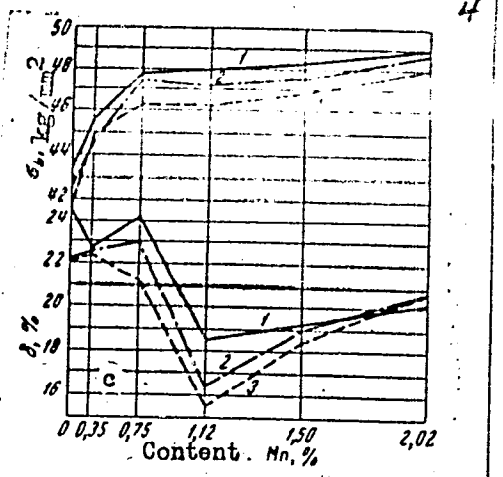


Fig. 1. Dependence of the mechanical properties of alloys No. 1 (a), No. 2 (b), and No. 3 (c) on the manganese content. Temperature of annealing: 1 - 510C; 2 - 505C; 3 - 500C; 4 - 490C.

The properties of the new alloys were compared with the properties of the alloys D16, D6, SO, and NS. The author suggests that a study of the effect of increasing proportions of manganese in aluminum alloys on their mechanical and corrosion properties is of great importance to the semifinished aluminum alloys products industry. Orig. art. has: 4 tables and 2 graphs.

SUB CODE: 11/ SUBM DATE: 16Sep65/ ORIG REF: 001

Card 3/3 af

ABDULLAYEV, D.A.; ZAKHAROV, Ya.V.; SHAAKHMEDOVA, R.A.

Developing over-all remote control devices with dispersed executive components and equipped with noncontact elements. Izv. AN Uz. SSR. Ser. tekh. nauk no. 1:7-15 '61. (MIRA 14:2)

1. Institut energetiki i avtomatiki AN UzSSR.
(Remote control)

22327

S/167/61/000/001/001/004
A104/A133

94000

AUTHORS: Abdullayev, D. A., Zakharov, Ya. V., Shaakhmedova, R. A.

TITLE: Design of large scale telemechanical equipment with decentralized control points and non-contact circuits

PERIODICAL: Izvestiya Akademii nauk UzSSR. Seriya tekhnicheskikh nauk, no. 1, 1961, 7 - 15

TEXT: The overall automation and remote control, especially in petroleum and gas processing, mining, etc, requires equipment which eliminates the danger of arcs or sparks occurring during the switching, of which the non-contact circuits are most appropriate. Magnetic couplings with a rectangular hysterisis loop, semiconductor triodes and diodes increase the efficiency, simplify the construction and reduce the dimensions of remote control devices. The simplest non-contact relays are obtained using of magnetic material with a rectangular hysterisis loop. There are two groups of suitable materials, i. e. band-shaped permalloys (nickel-iron alloys) and ferrites composed of iron oxide and bivalent metal oxides. Electric and magnetic properties of ferrites produced in the USSR are given in Reference 2, (A. I. Pirogov, Author's abstract, of Candidate's dis-

Card 1/5

Design of...

sertation Moscow, 1959). The specific requirements of a rectangular hysterisis loop for couplings with relay function has been discussed in Reference 3 (Tutevich, V. N., "Elektrichestvo", 1955 II). A typical ferrite diode circuit diagram and a ferrite transistor circuit diagram are shown. The most simple and reliable design of a non-contact relay is a remote-controlled relaxation system, with a blocking device, proposed by I. V. Prangishvili (Ref. 4, Author's abstract, of Candidate's dissertation Moscow, 1959). Standard series of remote-controlled devices have been developed under the supervision of Doctor of Technical Sciences, Professor M. A. Gavrilov in cooperation with V. A. Zhozhikashvili and R. V. Bilik of the Institut avtomatiki i telemekhaniki AN SSSR (Institute of Automation and Telemechanics of the Academy of Sciences USSR) and D. A. Abdullayev, Ya. V. Zakharov, R. A. Shaakhmedov and D. S. Yakubov of the Institut energetiki i avtomatiki AN UzSSR (Institute of Power Engineering and Automation of the Academy of Sciences UzSSR). The improved series differ from earlier types (Ref. 5, E. V. Babicheva, Industrial Telemechanics AS USSR, M. 1960) by telemetering (continuous and by summons) and the ability of control several objects. The equipment is based on a distributive selection method with time separation of pulses in the code, and a continuous cyclic function of 1,12 cps. During each cycle the dispatcher point can receive and transmit signals to the pulse point and vice-versa. There should

Card 2/5

Design of...

be at least four mean pulse-point blocks in each system, i.e., junction, intermediate, final with reciprocal retranslation of the cophasal pulse and a final pulse-point block of the system. The most frequent is the nodal pulse-point type. The pulse distributor of a semi-block dispatcher-point consists of a series of interconnected ferrite-diode couplings. They are divided into even and odd groups, fed by pulses of negative and positive polarity. The even groups receive and classify control signals and the odd groups transmit operational and cophasal impulses. The function of individual blocks and of the entire unit is described in the joint report of the IAT AN SSSR (Institute of Automation and Telemechanics of the Academy of Sciences USSR and the Institute of Power Engineering and Automation of the Academy of Sciences UzSSR, 1959. An experimental model designed in the workshop of the Institute of Automation and Telemechanics of the Academy of Sciences USSR for the dam of the Tyuya-Buguz storage lake on the Angren River, covers 30 objects. The installation consists of three pulse-point semi-blocks, each covering up to 10 objects and operating on double communication lines. Synchronous feeding of the dispatcher point and pulse-point is essential and permits the transmission of orders on the principle of presence or absence of pulses. At each pulse-point the retranslation is accompanied by amplification of signals, therefore the range of operation is determined by the distance between the two

Design of...

farthest pulse-points. If this distance does not exceed 50 km, the range is practically unlimited. The continuous cyclic function with time separation of channels enables the transmission of commands, telemetric and control signals by one communication line, thus combining a full control of a multipositioned object and simultaneous telemetric observation of its travel in the given direction. The main advantage of the modified system is the elimination of command converter elements, which increase the accuracy of operation and control. The use of non--contact elements reduces the danger of executing false orders to a minimum. Operational errors are caused mainly by the effect of surrounding media and disturbances in the communication channels. Laboratory tests carried out according to ГНТК Soveta Ministrov SSSR (GNTK of the Council of Ministers of the USSR) proved the reliability of this system under the effect of pulsating and fluctuating disturbances at temperatures varying between -20°C and +60°C. Special tests verified the possibility of telephone communications parallel to the transmission of tele-signals. Mutual effects of operational pulses and telephone currents are prevented by low-frequency filters placed at the input of the pulse-points and high-frequency filters near the telephone. Adverse effects from variable voltage of the feeding current are prevented by adjustment of individual blocks within a range of 150 - 250 v, at a rated voltage of 220 v. There are 6 figures and 7

Card 4/5

22327

Design of...

S/167/61/000/001/001/004
A104/A133

Soviet-bloc references.

ASSOCIATION: Institut energetiki i avtomatiki AN UzSSR (Institute of Power Engineering and Automation of the Academy of Sciences UzSSR)

SUBMITTED: July 16, 1960

X

Card 5/5

L 39161-66 EEC(k)-2/EWT(d)/EWP(1) IJP(c) GG/BB

ACC NR: AP6030380 SOURCE CODE: UR/0167/66/000/002/0080/0083

AUTHOR: Abdullayev, D. A.; Zakharov, Ya. V.; Zhuravlev, V. M. 55 B

ORG: Uzbek Scientific Research Institute for Power and Automation (Uzbekskiy nauchno-issledovatel'skiy institut energetiki i avtomatiki) 16

TITLE: Synthesis of the selector of one class of information processing device

SOURCE: AN UzSSR. Izvestiya. Seriya tekhnicheskikh nauk, no. 2, 1966, 80-83

TOPIC TAGS: information processing, pulse counter

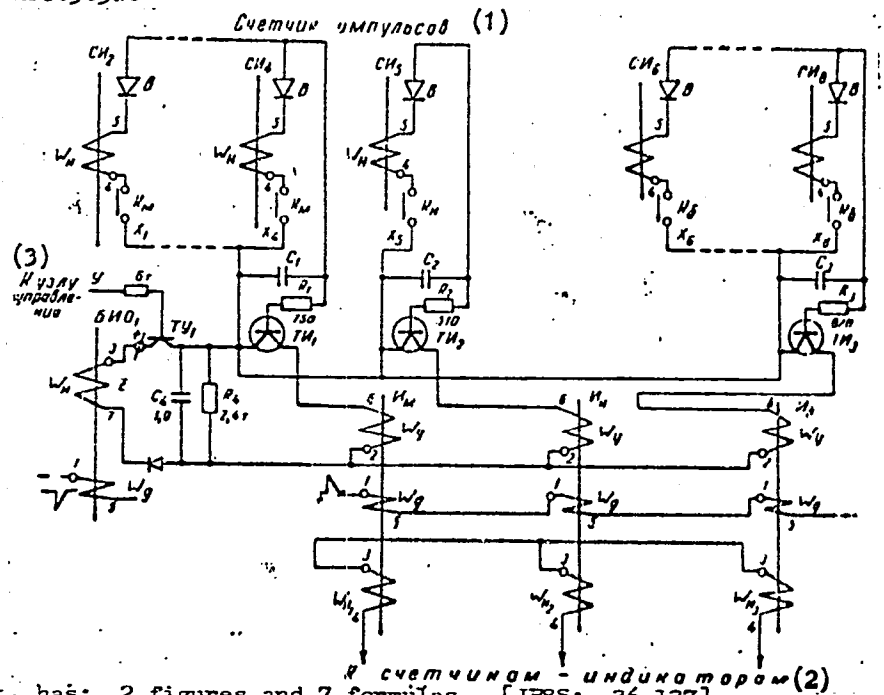
ABSTRACT: An interesting class of information processing devices is that in which the inputs receive signals with various characteristics and levels, and the output of each characteristic and its level is fixed individually. This requires selective distribution of the signals with identical levels into individual output channels. The authors have developed a device, applied to an automatic sowing device, which performs this function in a reliable manner with a somewhat simpler circuit than those known earlier. Below is a schematic diagram:

Key: 1 - pulse counter; 2 - to indicator-counters; 3 - to control unit; other symbols universal.

Card 1/2

L 39161-66

ACC NR: AP6030380



Orig. art. has: 2 figures and 7 formulas. [JPRS: 36,127]
SUB CODE: 09 / SUBM DATE: 20Apr65 / ORIG REF: 001
Card 2/2

L 24716-66 EWT(d)/EWT(l)/EWP(l)/EWA(h) IJP(c) BB/GG

ACC NR: AP6009908 SOURCE CODE: UR/0413/66/000/004/0105/0106

INVENTOR: Abdullayev, D. A.; Zakharov, Ya. V.; Zhuravlev, V. M.

ORG: none

TITLE: A device for asynchronous triggering of shift registers. Class 42, No. 179093

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 105-106

TOPIC TAGS: shift register, trigger circuit, computer component

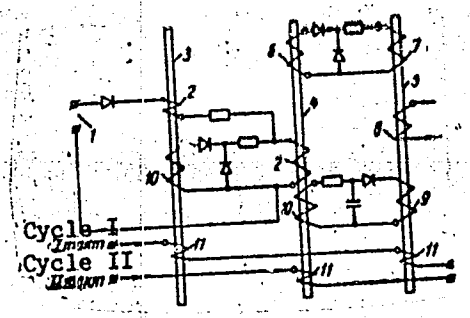
ABSTRACT: This Author's Certificate introduces a device for asynchronous triggering of shift registers. The unit is based on a two-cycle ferrite-diode shift register which contains three ferrite cores with control windings, as well as input and output windings connected by coupling circuits. The device also contains a blocking circuit connected between the input of the second core and the output of the third core. An isolated synchronous pulse is generated over a wide range of trigger pulse durations by connecting the recording winding of the second core in series with the trigger circuit.

Card 1/2

UDC: 681.142.07

L 24716-66

ACC NR: AP6009908



1 - input; 2 - input winding; 3-5 - cores; 6 - blocking winding; 7 - feedback winding; 8 - output winding of core 5; 9 - input winding of core 5; 10 - output windings of cores 3 and 4; 11 - control winding for the corresponding core.

SUB CODE: 09/ SUBM DATE: 28Jul63/ ORIG REF: 000/ OTH REF: 000

Card 2/2

ZAKHAROV, Yakov Yakovlevich; KROMOSHCH, I.L., inzh., nauchn. red.; BOROVNEV, N.K., tekhn. red.

[Industrial training in technical schools] Proizvodstvennoe obuchenie v tekhnikumakh. Moskva, Gosstroiizdat, 1963. 194 p. (MIRA 17:1)

ZAKHAROV, Ye. D.

"Effect of Cold Plastic Deformation on the Aging Process of the Alloy B-95." Thesis for degree of Cand. Technical Sci. Sub 15 June 50, Moscow Aviation Technological Inst.

Summary 71, 4 Sep 52, Dissertations Presented for Degrees in Science and Engineering in Moscow in 1950. From Vechernyaya Moskva. Jan-Dec 1950.

ZAKHAROV, Ye.D.

137-1958-2-2694

~~Zakharov Ye.D.~~

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 71 (USSR)

AUTHORS: Fridlyander, I.N., Zahkarov, Ye.D., Podsechinov, A.V., Klyagina, N.S., Solov'yeva, V.V.

TITLE: Air-cooled and Water-cooled Round Ingots Cast From Alloy V95 (an Aircraft Aluminum Alloy) (Issledovaniye kruglykh slitkov splava V95, otlitykh s okhlazhdeniyem vodoy i vozdukhom)

PERIODICAL: V sb.: Metallurg. osnovy lit'ya legkikh splavov. Moscow, Oborongiz, 1957, pp 5-46

ABSTRACT: A study was made of the structure and properties of air-cooled and water-cooled cast round ingots (370 mm in diameter) and of sections obtained from them. Water cooling was found to enhance the quality and evenness of the mechanical properties and to reduce formation of liquation bands; on the other hand, water cooling would impair the corrosion resistance of the sections and intensify the formation of liquation burls on the ingots. Ingots of alloy V95 should be water-cooled.

G.S.

Card 1/1 1. Alloys--Ingots--Properties--Determination

ZAKHAROV, Ye. D.

137-1958-3-4918

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 66 (USSR)

AUTHORS: Fridlyander, I. N., Zakharov, Ye. D., Dronova, N. P., Solov'yeva, V. V., Petrova, A. A.

TITLE: An Investigation of Light-colored Crystallites in Aluminum Alloys D16 and V95 (Issledovaniye svetlykh kristallitov v alyuminiyevykh splavakh D16 i V95)

PERIODICAL: V sb.: Metallurg. osnovy lit'ya legkikh splavov. Moscow, Oborongiz, 1957, pp 215-228

ABSTRACT: The nature of the distribution of light-colored crystallites (LC), as well as their composition, was studied on ingots and on pressed components made of alloys D16 and V95; their effect on the mechanical properties of the alloy was investigated, also methods by which they can be eliminated. In ingots made of alloys D16 and V95, the LC are embedded in the central zone, whereas in components manufactured by pressing, their position varies. LC are seldom encountered in ingots 280 mm in diameter or less. In the D16 alloy the LC exhibit a lowered Cu and Mg content. The Cu content may decrease by 0.1 -.0.96 percent, the Mg content by 0.10 - 0.21 percent. The average values of the Cu and

Card 1/2

An Investigation of Light-colored Crystallites in Aluminum Alloys (cont.)

Mg concentrations decrease by 0.3 - 0.5 percent and 0.05 - 0.12 percent, respectively. In the V95 alloy the decrease in Cu content may amount to 0.07 - 0.14 percent, that of Mg to 0.12 percent, and that of Zn to 0.09 - 0.41 percent. The composition of the LC's corroborates their origination in the scum of the molten metal. The amounts of Cr, Mn, Te, and Si contained in the LC and in the adjacent areas of the basic metal do not undergo any significant changes. The LC contained in ingots and press-formed components made of the D16 and V95 alloys exhibited a decreased hardness. In the case of D16 alloy the σ_s values are 1.5 - 3.0 kg/mm^2 lower in the regions of bright spots, whereas the mechanical properties of the V95 alloy in the bright spots decrease more abruptly than the properties of D16 alloy.

G. S.

Card 2/2

ZAKHAROV, Ye. D.

137-1958-2-2695

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 71 (USSR)

AUTHORS: Fridlyander, I.N., Zakharov, Ye.D., Dronova, N.P., Solov'yeva, V.V.

TITLE: The Mechanism of the Formation of Intermetallic Compounds in Ingots of Alloy V95 (an Aircraft Aluminum Alloy) (Issledovaniye mekhanizma poyavleniya intermetallidov v slitkakh iz splava V95)

PERIODICAL: V sb.: Metallurg. osnovy lit'ya legkikh splavov. Moscow, Oborongiz, 1957, pp 236-285

ABSTRACT: The basic cause of the formation of coarse Cr and Mn intermetallic compound inclusions in alloy V95 was found to be slow cooling during the crystallization process. When a melt was cooled slowly, the increase in the Cr and Mn concentrations and especially the addition of small quantities of Ti produced an enlargement of the intermetallic compound inclusions. Whether the melt was cooled rapidly or slowly, the formation of intermetallic compound inclusions was not affected by the composition of the original alloying element, by raising the temperature of the heat from 730 to 780°, or by increasing the exposure time of the molten metal at these temperatures from 1 to 5 hours. G.S.

Card 1/1

1. Alloys ingots--Applications 2. Compounds--Formation

FRIDLYANDER, I.N.; ZAKHAROV, Ye.D.; TIGINA, L.P.

Kinetics of aging of aluminum alloys in the system Al - Cu - Mg.
Issl. splav. tsvet. met. no.3:58-61 '62. (MIRA 15:8)
(Aluminum-copper-magnesium alloys--Hardening)

ACCESSION NR: AT4037657 S/2981/64/000/003/0159/0174

AUTHOR: Zakharov, Ye. D.; Dronova, N. P.; Nikol'skaya, L. Ye.

TITLE: A study of alloying component diffusion in aluminum alloys

SOURCE: Alyuminiyevy*ye splavy*, no. 3, 1964. Deformiruyemy*ye splavy* (Malleable alloys), 159-174

TOPIC TAGS: aluminum alloy, aluminum A00, alloy V95, alloying component diffusion, Kirkendahl effect, homogenizing related diffusion, hot working related diffusion, diffusion analysis, diffusion pores

ABSTRACT: Sandwich strips (2 mm thick) were prepared, using various aluminum alloys (see Table 1 in the Enclosure) as cores and aluminum A00, an alloy of Al + 0.5% Mn or alloy V95 in 50% dilution with aluminum as the outer layers. Samples were homogenized at 500C for 6 hours or 1, 3, 4 or 10 days, then tempered 1 hour at 250C. Photomicrographs were analyzed to determine the diffusion of alloying components in the core. The results indicate that Kirkendahl's effect occurs in aluminum alloys, large pores of diffusion origin forming during prolonged heating of the metal to high temperatures. The occurrence of such pores can be promoted by liquation heterogeneity of the ingots, by thick layers of intermetallic phases, the local fusion of fusible components,

Card 1/3

ACCESSION NR: AT4037657

etc. Processes of heating or combined heating and hot working should be tailored either to avoid development of diffusion pores or to allow liquidation of such pores through self-diffusion. "Ye. F. Romanova did part of the photography." Orig. art. has: 1 table and 12 sets of photomicrographs.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 04Jun64 ENCL: 01

SUB CODE: MM NO REF SOV: 000 OTHER: 000

2/3

Card

ACCESSION NR: AT4037657

ENCLOSURE: 01

TABLE 1

Chemical composition of alloys used in the core layers of sandwich strips (aluminum based)

Core alloy No.	Content of alloying element in %;				Reinforcing phase
	Cu	Mg	Zn	Si	
1	11.15	--	--	--	$CuAl_2$
2	10.26	4.0	--	--	S
3	10.37	3.91	--	2.4	W(?)
4	--	3.65	--	2.24	Mg_2Si
5	--	3.61	19.8	--	$MgZn_2$
6	--	--	20.2	--	Zn
7	--	3.64	--	--	Mg_2Al_3
8	--	--	--	2.2	Si

Card 3/3

ACCESSION NR: AT4037664 S/2981/64/000/003/0227/0236

AUTHOR: Zakharov, Ye. D.; Yugova, V. V.; Kuznetosova, K. N.; Sadovnikova, L. N.

TITLE: Volume changes in semifinished products of alloy V 95 heat treatment

SOURCE: Alyminiyevy*ye splavy*, no. 3, 1964. Deformiruyemy*ye splavy* (Malleable alloys), 227-236

TOPIC TAGS: aluminum, aluminum alloy, alloy V 95, aluminum alloy heat treatment, aluminum alloy aging, aluminum alloy quenching, magnesium admixture, zinc admixture

ABSTRACT: Residual stresses in the material are the basic cause of distortion during machining. These stresses can be produced either by rapid cooling during quenching or by separation of phases from solid solution during aging, and can be alleviated in various ways, e.g., by a light pressing operation in the final die, by subjecting the part to a series of small plastic deformations alternating in sign, or by the method of thermal cycling. In technical aluminum alloys of complex composition, in which intermetallic phases precipitate during artifical aging, the change in specific volume has a complex character. In the present paper, the authors report on the volume changes in alloy V 95 during the process of aging as well as during repeated quenching. Since the lattice constant of Al

Card 1/4

ACCESSION NR: AT4037664

depends on the amount and kind of admittures, the chemical composition was varied slightly (1.8 or 2.8% Mg, 5.0 or 7.0% 2n, 0 or 1.4% Cu, 0 or 0.35% Mn and 0 or 0.15% Cr). Graphs are presented showing the relative elongation of tested strips versus aging time from 1 to 120 hours at 140 or 160 C (for example, see Fig. 1 of the Enclosure). In tests with specimens containing 7.0% zinc, shrinkage was observed at both 140 and 160 C. The maximal strengthening of the alloy due to aging coincided with the time of maximal shrinkage, after which the length of the specimen practically returned to its initial value. Particularly large shrinkage (0.1%) was exhibited by alloys with Cr, Cu and 7.0% Zn. For parts in which distortion during the aging process is particularly undesirable, V95 alloy with 5.0% Zn is therefore recommended, the volume changes of which are considerably lower and of a monotonous character. With regard to the influence of repeated quenching, tests were conducted with two groups of specimens. Tests with the first group, which was annealed at 450 C for 48 hrs., showed that a slight elongation occurs after the first quenching. During subsequent aging, however, shrinkage takes place, and beginning with the second cycle, the length of the specimens decreases monotonously. Tests with the second group showed thatduring 13 repeated quenching procedures without consecutive aging, the dimensions of the specimens decreased uniformly in all directions after each quenching. The resultant shrinkage after 13 quenchings was 1.0 - 1.3%. The character of the observed

Card 2/4

ACCESSION NR: AT4037664

shrinkage showed that this phenomenon is not related to processes of phase transformation. The authors recommend that repeated heat-treatment (if such is technologically required) be applied only to rough-machined details. "I. N. Sudzilovskaya, A. I. Dzevoyed and L. P. Tigina also took part in the experimental work." Orig. art. has: 9 figures.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 04Jun64	ENCL: 01
SUB CODE: MM	NO REF SOV: 001	OTHER: 002

Card 3/4

Enclosure 01

ACCESSION NR: AT4037664

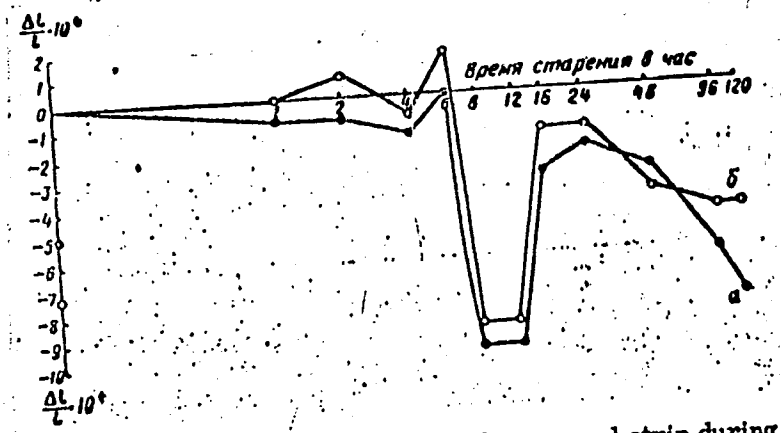


Fig. 1. Change in length of a pressed strip during aging at 140 C.
a - alloy 2V (Al + 1.4% Cu, 2.8% Mg, 0.35% Mn, 7.0% Zn and 0.15% Cr).
b - alloy 4V (Al + 1.4% Cu, 1.8% Mg, 0.35% Mn, 7.0% Zn and 0.15% Cr).

Card 4/4

ACCESSION NR: AT4037673 S/2981/64/000/003/0349/0362

AUTHOR: Zakharov, Ye. D.; Zakharov, V. Z.; Kopy*tov, G. A.; Chekanov, A. N.

TITLE: Causes of hot cracking in continuously cast ingots of high strength alloys

SOURCE: Alyuminiyevy*ye splavy*, no. 3, 1964. Deformiruyemy*ye splavy* (Malleable alloys), 349-362

TOPIC TAGS: aluminum alloy, alloy V95, continuously cast ingot, alloy hot cracking, effective crystallization range, ingot cooling, ingot temperature distribution, transition zone width, casting parameter selection, mold height selection, charging hopper width, continuous casting, aluminum alloy casting, alloy crystallization, mold diameter selection

ABSTRACT: The study concerned the selection of optimal conditions for continuous casting of ingots with diameters of 500-520 mm from technically pure alloy V95 (1.66% Cu, 2.13% Mg, 5.8% Zn, 0.42% Mn, 0.14% Cr, 0.18% Si), in order to counteract the alloy's tendency to hot cracking. Three casting variants involved mold diameters of 520 (I), 500 (II) and 520 (III) mm, respectively, mold heights of 200, 400 and 400 mm, hopper diameters of 130, 130 and 320 (circular)mm, casting rates of 18, 25 and 20 mm/min, water pressures of 0.2, 0.5 and 0.5 atm. and a melt temperature of 690C for all variants. Width of the transition zones and ingot temperature distributions were analyzed in terms of cooling curves

Card 1/2

ACCESSION NR: AT4037673

obtained from three thermocouples inserted at the periphery, in the center and at a half-radius point. Consideration was given to the shape of ingot crescents. It was concluded that hot cracking is due to tensile stresses present in the ingot over the effective crystallization range (570-470C in this case), hence minimal width of the transition zone (variant I) throughout the ingot is desirable. The tendency to hot cracking was very slight where this width decreased from the center to the periphery. Variant III provided conditions for the development of intercrystalline cracks in the half-radius zone, while variant II resulted in development of surface cracks and deterioration of mechanical properties. Orig. art. has: 9 graphs and 2 tables.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 04Jun64 ENCL: 00

SUB CODE: MM NO REF SOV: 000 OTHER: 000

Card 2/2

L 29798-66 EWT(m)/EWP(t)/ETI IJP(c) JD/GD/JH

ACC NR: AT6016425 (A) SOURCE CODE: UR/C000/65/000/000/0173/0178

AUTHORS: Zakharov, Yo. D.; Sorokin, N. A.; Kuznetsov, A. N.; Sinyavskiy, V. S.; Gusev, V. P.; Kuznetsova, K. N.; Tsay, A. F.; Yegorova, L. S. 54 B+1

ORG: none

TITLE: Dependence of the stability of the solid solution in the alloy D16 on the chemical composition

SOURCE: AN SSSR. Institut metallurgii. Metallovedeniye legkikh splavov (Metallography of light alloys). Moscow, Izd-vo Nauka, 1965, 173-178

TOPIC TAGS: aluminum ~~containing~~ chemical composition, metal property, alloy, solid solution, magnesium containing alloy, copper containing alloy, manganese containing alloy / D16 aluminum alloy

ABSTRACT: The stability of solid solution in D16 type aluminum alloys was studied as a function of the alloy composition. The stability of the solid solutions was determined by the method of step-wise tempering at 250, 300, 350, 400, and 450C for periods of 0.5, 1, 2, 3, 5, 7, 10, 20, and 60 min. After tempering, the specimens were naturally aged for a period of 10 days, then their electrical conductivity, strength limit, relative elongation, and flow limit were determined. The experimental results are shown graphically (see Fig. 1). On the basis of the experimental data C-curves for the stability of solid solution were constructed (see Fig. 2). The optimum alloy composition results from: less than 6% total copper

Card 1/3

L 29798-66

ACC NR: AT6016425

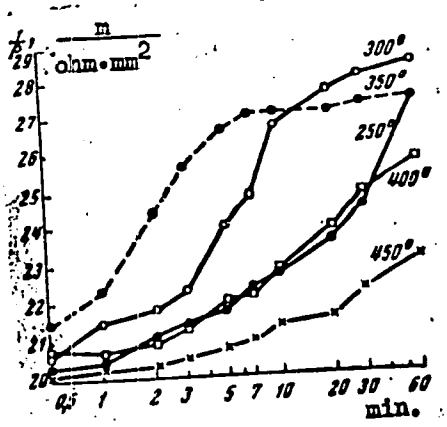


Fig. 1. Change in the electrical conductivity of alloy No. 1 (3.91% Cu; 1.2% Mg; 0.5% Mn) as a function of the duration of isothermal tempering at intermediate temperatures.

Card 2/3

L 29798-66

ACC NR: AT6016425

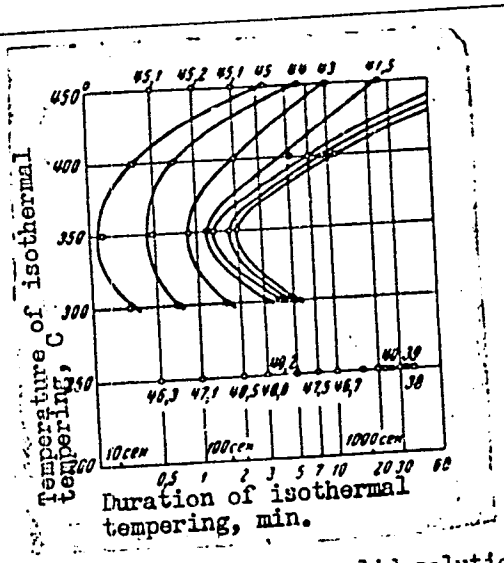


Fig. 2. C-type diagram for the stability of the solid solution in alloy No. 1, constructed from data for the change in the strength limit (for normal tempering σ_b = 45.1 kg/mm^2).

and magnesium content for a total of less than 4.8% copper content. The manganese content should be less than 0.6%. Orig. art. has: 1 table and 5 figures.

SUB CODE: 11/ SUBM DATE: 16Sep65/ ORIG REF: 001/ OTH REF: 002

Card 3/3

ZAKHAROV, Ye.D.

Changes of crystallization conditions during the continuous casting of ingots. Alium. splavy no.3:339-348 '64.
(MIRA 17:6)

ZAKHAROV, Ye.D.; GUR'YEV, I.I.; SOLOV'YEVA, V.V.; DRONOVA, N.P.; GIL'DENGORN, I.S.; KHODAKOV, P.Ye.; BONDAREV, B.I.

Nonuniformity in continuously cast ingots and its effect on the quality of semifinished products. Alium. splavy no.3:371-382 '64. (MIRA 17:6)

ZAKHAROV, Ye.D.; DRONOVA, N.P.; NIKOL'SKAYA, L.Ye.

Investigating the diffusion of addition alloy elements in aluminum alloys. Alium. splavy no.3:159-174 '64. (MIRA 17:6)

ZAKHAROV, Ye.D.; PETROVA, A.A.; ZHIKHAREV, Yu.V.; SAVELOVA, N.M.

Effect of chemical composition on the hardenability of the V95 alloy. Metalloved. i term. obr. met. no.12:16-21 D'63. (MIRA 17:2)